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EXAMINER

WAKS, J

ART UNIT

PAPER NUMBER

2834

DATE MAILED:

07/12/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/509,467

Applicant(s)

LEIJON ET AL.

Examiner

Joseph Waks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 and 57-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-55 and 57-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 7.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/SE98/01734, filed on 29 September 1998.

Specification

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the corresponding potentials of the conductor and the first layer as recited in claim 2.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. **Claim 2** is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not support the claimed feature of the conductor and the first layer having substantially equal potentials.

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6. **Claim 2** is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not define where, in what direction and with respect to what the correspondent potentials of the conductor and the first layers being considered.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1-57, 58-60** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 9, "auxiliary power" should be --an auxiliary power--.

In claim 2 it is not clear with respect to what, in what direction and where are the potentials of the conductor and the first layer being measured.

In claim 6, the relatively large coefficients of thermal expansion are indefinite since it is not clear relative to what they are considered be large and the scope of the claim is unascertainable.

In claim 8, line 3, "and each is firmly joined" is ambiguous, examiner suggests --and each said layer is firmly joined--.

In claim 10, line 5, "each conductor" should be --each of said conductors--, line 7, "each conductor" should be --each said conductor--, line 8, "Insulating" should be --insulating--, and line 10, "auxiliary power" should be --an auxiliary power--.

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In claim 12, line 3, “the stator” lacks antecedent basis, and line 4, “auxiliary power” should be –said auxiliary power--.

In claim 18, line 2, “the stator” lacks antecedent basis, line 4, “between two adjacent stator teeth” is ambiguous, examiner suggests -- between the adjacent stator teeth--.

In claim 19, line 3, “the stator” lacks antecedent basis.

In claim 20, line 2, “every slot” should be –every said slot--, and line 3, “the stator” lacks antecedent basis.

In claim 21, line 4, “auxiliary power” should be –said auxiliary power--.

In claim 25, line 4, “auxiliary power” should be –said auxiliary power--.

In claim 40, line 3, “the speed”, line 4, “the voltage”, line 5, “the supply network” lack antecedent basis, the claim should end with a period sign.

In claim 41, line 2, “the power electronics equipment” lacks antecedent basis, lines 3 and 4, “auxiliary power generator” should be –said auxiliary power generator, lines 3-4, “auxiliary power busbar” should be --an auxiliary busbar--, and line 4, “auxiliary power busbar” should be --said auxiliary busbar--.

In claim 54, line 8, “auxiliary power” should be –an auxiliary power--, and line 9, “the stator” lacks antecedent basis.⁴

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-5, 7-8, 10, 12-21, 38, 46-49, 51, 52, 54, 55** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al. (US 4,429,244)** in view of **Elton et al. (US 5,036,165)** and **Platzer (US 4,121,148)**.

Nikitin et al. disclose an alternating current electric machine 1 designed to be connected directly to a distribution or transmission network (Re column 1, lines 14-29), comprising winding 5 comprising a multi-layer electric cable 6 with a solid insulation and corona prevention layer 24. However, **Nikitin et al.** fail to disclose the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer, and the auxiliary power means arranged to provide the auxiliary power.

Elton et al. disclose in Figure an electric cable 100 having a first layer 104 with semiconducting properties surrounding a conductor 102 comprising a number of conductive elements in electric contact, a solid insulating layer 106 surrounding the first layer, a second layer 110 with semiconducting properties surrounding the insulating layer and connected to the earth for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine (Re column 1, lines 15-35).

Platzer discloses the auxiliary power means 5 arranged to provide the auxiliary power for the purpose of providing the synchronous generator with a self excitation system without use of a current transformer or a pilot exciter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the machine as taught by **Nikitin et al.** and to provide the first layer with semiconducting properties surrounding the conductor, the solid insulating layer

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surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer as taught by **Elton et al.** for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine and to simplify the structure of the machine winding.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined machine and to provide the auxiliary power means arranged to provide the auxiliary power as taught by **Platzer** for the purpose of providing the synchronous generator with a self excitation system without use of a current transformer or a pilot exciter.

Re claim 3, the limitation of the second semiconducting layer forming a substantially equipotential surface surrounding the conductor is inherent to the structure disclosed in the combined machine.

Re claim 8, the limitation of each of the layers being firmly joined to an adjacent layer is inherent to the structure disclosed in the combined machine.

Re claims 14-16, the combined machine discloses the claimed invention except for the voltage ranges the main and the auxiliary windings are dimensioned for. It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the main windings to be dimensioned for a range of the system distribution voltages it is design to be directly connected to, and the auxiliary winding voltage range in accordance with the auxiliary power demands since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

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11. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al. (US 4,429,244)** in view of **Elton et al. (US 5,036,165)** and **Platzer (US 4,121,148)** as applied to claim 1 above and further in view of **Elton et al. (US 4,622,116)**.

The combined winding discloses all elements essentially as claimed. However, it fails to disclose at least two adjacent winding layers having a substantially same coefficient of thermal expansion.

Elton et al. (US 4,622,116) disclose in Figures 1a- 2 and in column 7, lines 38-44 a winding having two adjacent layers 12 and 13 a substantially same coefficient of thermal expansion for the purpose of withstanding without failure the process of thermal aging and cycling the winding system being exposed to.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined winding and to provide two adjacent winding layers having a substantially same coefficient of thermal expansion as taught by **Elton et al. (US 4,622,116)** for the purpose of withstanding without failure the process of thermal aging and cycling the winding system being exposed to.

12. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al. (US 4,429,244)** in view of **Elton et al. (US 5,036,165)** and **Platzer (US 4,121,148)** as applied to claim 1 and further in view of **Shildneck (US 3,014,139)**.

The combined machine discloses all elements essentially as claimed. However, it fails to disclose the layers remaining adhere to each other when the insulated conductor is bent.

Shildneck discloses an insulated conductor or cable being flexible so it can be bent when forming the winding of dynamoelectric machine.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined machine and to provide the flexible cable as taught by **Shildneck** for the purpose of forming the winding of dynamoelectric machine. The limitation of the layers remaining adhere to each other when the insulated conductor is bent is inherent to the structure disclosed in the combined machine.

13. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al.** (US 4,429,244) in view of **Elton et al.** (US 5,036,165) and **Platzer** (US 4,121,148) as applied to claim 10 above and further in view of **Breitenbach et al.** (US 4,785,138).

The combined machine discloses the claimed invention except for the sheath.

Breitenbach et al. discloses the machine having a winding comprising cables protected by a sheath 10 for the purpose of preventing the cable from mechanical damage during installation and operation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the cable with a protective sheath as taught by **Breitenbach et al.** for the purpose of preventing the cable from mechanical damage during installation and the operation.

14. **Claims 1, 22, 23, 40-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al.** (US 4,429,244) in view of **Elton et al.** (US 5,036,165) and **Messenger** (US 3,908,161).

Nikitin et al. disclose an alternating current electric machine 1 designed to be connected directly to a distribution or transmission network (Re column 1, lines 14-29), comprising winding 5 comprising a multi-layer electric cable 6 with a solid insulation and corona prevention

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layer 24. However, **Nikitin et al.** fail to disclose the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer, and the auxiliary power means arranged to provide the auxiliary power.

Elton et al. disclose in Figure an electric cable 100 having a first layer 104 with semiconducting properties surrounding a conductor 102 comprising a number of conductive elements in electric contact, a solid insulating layer 106 surrounding the first layer, a second layer 110 with semiconducting properties surrounding the insulating layer and connected to the earth for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine (Re column 1, lines 15-35).

Messenger discloses the auxiliary power means comprising a separate auxiliary power generator 18 as an auxiliary power source including a permanent magnet generator 27 for the purpose of providing the synchronous generator 10 with a self excitation system and to power auxiliary systems when the main stator 11 is operated in a starter motor mode.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the machine as taught by **Nikitin et al.** and to provide the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer as taught by **Elton et al.** for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine and to simplify the structure of the machine winding.

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It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined machine and to provide the auxiliary power means arranged to provide the auxiliary power as taught by **Messenger** for the purpose of providing the synchronous generator with a self excitation system and to power auxiliary systems when the main stator is operated in a starter motor mode.

It would have been furthermore obvious to one having ordinary skill in the art at the time the invention was made to design the combined machine and to provide the auxiliary generator with the winding having the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer as taught by **Elton et al.** for the purpose of prohibiting development of the corona discharge in a high voltage auxiliary generator while simplifying the structure of the auxiliary generator winding.

15. **Claims 1, 24-37, 39, 50, 53, 57-60** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikitin et al. (US 4,429,244)** in view of **Elton et al. (US 5,036,165)** and **Baker et al. (US 4,948,209)**.

Nikitin et al. disclose an alternating current electric machine 1 designed to be connected directly to a distribution or transmission network (Re column 1, lines 14-29), comprising winding 5 comprising a multi-layer electric cable 6 with a solid insulation and corona prevention layer 24. However, **Nikitin et al.** fail to disclose the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer, and the auxiliary power means arranged to provide the auxiliary power.

Elton et al. disclose in Figure an electric cable 100 having a first layer 104 with semiconducting properties surrounding a conductor 102 comprising a number of conductive elements in electric contact, a solid insulating layer 106 surrounding the first layer, a second layer 110 with semiconducting properties surrounding the insulating layer and connected to the earth for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine (Re column 1, lines 15-35).

Baker et al. disclose in Figure 3 the auxiliary power means comprising a secondary winding of an earthing transformer 28 as an auxiliary power source connected to a busbar 25 for the purpose of forming the neutral reference potential for the generator and providing the synchronous generator with ground protection and to power auxiliary systems during starter motor operating mode.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the machine as taught by **Nikitin et al.** and to provide the first layer with semiconducting properties surrounding the conductor, the solid insulating layer surrounding the first layer, the second layer with semiconducting properties surrounding the insulating layer as taught by **Elton et al.** for the purpose of prohibiting development of the corona discharge in high powered electrical apparatus such as dynamoelectric machine and to simplify the structure of the machine winding.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined machine and to provide the auxiliary power means comprising a secondary winding of an earthing transformer as an auxiliary power source connected to a busbar as taught by **Baker et al.** for the purpose of forming the neutral reference

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potential for the generator and providing the synchronous generator with ground protection, and to power auxiliary systems during starter motor operating mode. It would have been furthermore obvious to one having ordinary skill in the art at the time the invention was made to provide an earthing transformer for a ground protection of a number of generators connected to a common distribution system since the examiner takes Official Notice the use of earth transformers for protection of multiple generator systems is well known in the art of electric power distribution systems and it would be within the level of ordinary skill in the art to interpolate a system serving a single generator for servicing the multi-generator system (Re for example the US Patent 4,189,208 to Fiorentzis).

Claims 27-37, 39 are rejected since the examiner takes Official Notice the use of the auxiliary systems for support power plant startup and operation such as auxiliary power busbars with regulated voltage and battery backed up voltage, the power electronic equipment with diode bridge, converters and separately driven auxiliary power generators supplying excitation current during the startup are well known in the art of power plant systems and it would be within the level of ordinary skill in the art to select such equipment for providing the generators with ground protection and self-starting capabilities.

Prior Art

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Communication

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Waks whose telephone number is (703) 308-1676. The examiner can normally be reached on Monday through Thursday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



JOSEPH WAKS
PRIMARY PATENT EXAMINER
TC-2800

JW
July 11, 2001